# Montana Board of Oil and Gas Conservation
# Environmental Assessment

**Operator:** Slawson Exploration Company, Inc.
**Well Name/Number:** Cleaver 1-30H
**Location:** SW SW Section 30 T21N R60E
**County:** Richland**, MT; Field (or Wildcat)** Wildcat

## Air Quality

(possible concerns)
Long drilling time: No, 25-35 days drilling time.
Unusually deep drilling (high horsepower rig): Triple derrick rig to drill a single lateral Horizontal Bakken well test, 14,564'MD/10,365'TVD.
Possible H2S gas production: Slight chance H2S gas production.
In/near Class I air quality area: No Class I air quality area in the area of review.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:
X Air quality permit (AQB review)
X Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:_____

Comments: Gas gathering facilities are available to hookup wellhead gas in this area. Single lateral, 14,564'MD/10,365'TVD Bakken Formation horizontal well.

## Water Quality

(possible concerns)
Salt/oil based mud: Yes intermediate string casing hole will be drilled with oil based invert drilling fluids. Oil based invert drilling fluids for horizontal leg. Surface casing hole to be drilled with freshwater and freshwater mud.
High water table: No high water table expected in the area of review.
Surface drainage leads to live water: No, closest drainage is O'Brien Creek, about ¼ of a mile to the northeast from this location. Within O'Brien Creek is a stock pond, about 1/4 of a mile to the east from this location.
Water well contamination: No, closest nearby wells are about ½ of a mile to the east from this location. Depth of these wells are 86' and 1673' in depth. Surface hole will be drilled with freshwater and surface casing will be cemented to surface from 1673'.
Porous/permeable soils: No, silty sand clay soils.
Class I stream drainage: No, Class I stream drainages in the area of review.

Mitigation:
__ Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
X Closed mud system
__ Off-site disposal of solids/liquids (in approved facility)
X Other: Lined cuttings pit will be dug for cuttings burial on well site or will be trucked to an authorized disposal facility.

Comments: 1673' surface casing to be set to protect freshwater zones and to cover the Fox Hills aquifer. Adequate surface casing and operational BOP equipment should prevent any problems.

## Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: None anticipated.
High erosion potential: Yes, location will require moderate cut, up to 28.3' and moderate fill, up to 15.4', required.
Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: No, very large well site 450'X400'
Damage to improvements: Slight, surface use is grazing land.
Conflict with existing land use/values: Slight

Mitigation
__ Avoid improvements (topographic tolerance)
__ Exception location requested
X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: Access will be over existing county road, #116. An access road will be built into location off the existing county road, about 1254' new road will be built into this location. Drilling rig will utilize a closed loop mud system. Cuttings will be buried in the lined cuttings pit or trucked to an authorized solids disposal facility. Surface freshwater drilling fluids will be trucked to the next location. Oil based invert drilling fluids will be recycled. Completion fluids will be hauled to a Class II disposal. No concerns.

**Health Hazards/Noise**

(possible concerns)
Proximity to public facilities/residences: Closest residences are about ½ of a mile to the east and about 1.325 miles to the northwest from this location.
Possibility of H2S: Slight chance H2S.
Size of rig/length of drilling time: Triple drilling rig 25 to 35 days drilling time.

Mitigation:
X Proper BOP equipment
__ Topographic sound barriers
__ H2S contingency and/or evacuation plan
__ Special equipment/procedures requirements
__ Other:_____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems. Distance is sufficient to mitigate any noise problems.

**Wildlife/recreation**

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): Little Missouri National Grasslands about 1.5 miles to the east of this location in North Dakota.
Proximity to recreation sites: Little Missouri National Grasslands about 1.5 miles to the east of this location in North Dakota.
Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: No
Threatened or endangered Species Threatened or endangered species listed in Richland county by USFW service are Pallid Sturgeon, Piping Plover, Interior Lease Tern and Whooping Crane. Candidate species are the Greater Sage Grouse and the Sprague's Pipit. NH tracker website lists the following as "Species of Concern": six (6) are listed as follows: Meadow Jumping Mouse, Baird's Sparrow, Grasshopper Sparrow, Whooping Crane, Loggerheaded Shrike and Greater Shorthorn Lizard.

Mitigation:
__ Avoidance (topographic tolerance/exception)
__ Other agency review (DFWP, federal agencies, DSL)
__ Screening/fencing of pits, drillsite
__ Other:_____
Comments: Surface grasslands are private. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern are discovered at this location.

**Historical/Cultural/Paleontological**

(possible concerns)
Proximity to known sites __None identified_____
Mitigation
__ avoidance (topographic tolerance, location exception)
__ other agency review (SHPO, DSL, federal agencies)
__ Other:_____
Comments: Surface grasslands are private. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite.

**Social/Economic**

(possible concerns)
__ Substantial effect on tax base
__ Create demand for new governmental services
__ Population increase or relocation
Comments: No concerns_____
_____
_____

**Remarks or Special Concerns for this site**

A single lateral Upper Bakken Shale horizontal well,14,564'MD/10,365'TVD.
_____

**Summary: Evaluation of Impacts and Cumulative effects**

No long term impacts expected. Some short term impacts will occur.
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I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC):___/s/Steven Sasaki_____
(title:) Chief Field Inspector
Date: January 29, 2012
Other Persons Contacted:
_____
_____
(Name and Agency)
_Montana Bureau of Mines and Geology, Groundwater Information Center

website.
(subject discussed)
_Water wells in Richland County
(date)
January 29, 2012

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES, Richland County
(subject discussed)

January 29, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T21N R60E
(subject discussed)

January 29, 2012
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____